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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,550	03/13/2002	Takashi Gojobori	033808-282106	6662

7590 01/13/2004  
Reed Smith, LLP  
3110 Fairview Park Drive  
Suite 1400  
Falls Church, VA 22042

EXAMINER

KENEDY, ANDREW A

ART UNIT	PAPER NUMBER
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1631

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,550

Applicant(s)

GOJOBORI ET AL.

Examiner

Andrew A. Kenedy

Art Unit

1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 22 is rejected under 35 U.S.C. 101 because a computer program, when not claimed as embodied in computer-readable media, is nonstatutory descriptive material (see MPEP § 2106(a)).

### ***Claim Rejections - 35 USC § 112***

Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to Claims 2-4, 6-10, 14, and 15, it is unclear at what step in claim 1 the additional method steps of claims 2-4, 6-10, 14, and 15 are to be implemented.

With regard to claim 1, the phrase "memorizing means" is indefinite as to whether it refers to a database, a computer memory, a removable memory storage device, etc. It is unclear what is encompassed since the term is not a standard term used in the art.

The phrase "living matter" is indefinite as to whether it refers to an organism, an organ, a tissue, a subgrouping of cells, a single cell, a constituent of a cell, etc. It is unclear what is encompassed since the term is not a standard term used in the art.

The phrase "site unit of the living matter" is indefinite as to whether it refers to an organ, a tissue, or a constituent of a cell, and if it is a constituent of cell, whether it is an organelle, a molecule, the active site of an enzyme, etc. It is unclear what is encompassed since the term is not a standard term used in the art.

The phrase "shape of the living matter" is indefinite as to whether it refers to a true-to-life representation of the "living matter", such as a photographic 3-D rendering, or simply an abstract symbolic representation.

The phrase "a viewpoint" is indefinite as to whether it refers to a position on the display screen where data is to be displayed, or a point of view from which to observe the displayed data.

The phrase "setting a viewpoint" is indefinite as to whether it involves entering numerical coordinates, or whether the user clicks on a position within the visual image display using a computer mouse, etc.

The phrase "setting a viewpoint on a three-dimensional space" is indefinite as to where the three-dimensional space is located. It is unclear whether the three-dimensional space lies in a three-dimensional coordinate system displayed on the computer screen, or somewhere else.

The phrase "to display it in one color or multiple colors in various scales depending on a frequency of expression of a gene" is indefinite. First, the words "to display" do not indicate whether an active step of displaying is to be executed. Second, it is unclear what degree of "frequency of expression of a gene" would result in a display of "one color" versus "multiple colors in various scales."

With regard to Claim 2, it is unclear what is meant by the phrase "embryogenesis of gene expression phenomenon". "Embryogenesis of gene expression phenomenon" is not a phrase having an art understood meaning. Gene expression phenomenon may occur as part of the process of embryogenesis. The applicant on the other hand, uses the term embryogenesis as a modifier of the phrase "gene expression", as if the phenomenon of gene expression itself can undergo embryogenesis. This is confusing, since only a living organism as a whole can undergo embryogenesis.

The term "animation" is indefinite as to whether it involves a dynamic moving picture/video, a static drawing, a slide show of static drawings, or a panel of drawings displayed in chronological order, etc.

With regard to Claim 3, it is unclear what is meant by "the living activities of its own" since this is not standard terminology used in the art. Applicant must adhere to accepted terminology within the art, or clearly indicate what is meant and encompassed by the chosen terminology.

With regard to Claim 5, the phrase "comparing the three-dimensional images" is indefinite as to what the comparison involves. For example, it is unclear whether the comparison involves visual inspection by the human user, or whether the computer performs a numerical comparison, and if so, what type of numerical comparison, etc.

The phrase "predetermined display format" is indefinite as to what types of display formats are encompassed.

With regard to Claim 6, the phrase "mapping an expression data of a cell or site to be observed on coordination points" is unclear as to where or what the expression data is mapped to, considering that observation of the data -- and not mapping -- is done on the coordination points.

The phrase "which is based on a data value thereof" in the context of the claim is indefinite. It is unclear what the object of "which" is, what the object of "thereof" is, and what type of "data value" is encompassed.

The phrase "color information corresponding to the individual coordination points" is indefinite. It is unclear what the color information is or how it was determined, and how it corresponds to the individual coordination points.

With regard to Claim 8, the phrase "to display an image" is indefinite as to whether or not the image is displayed.

With regard to Claims 10-13, the phrase "pedigree diagram" is not commonly used terminology for a schematic displaying cell lineage. For example, the terms lineage diagram, lineage tree, fate map, and fate tree are some commonly accepted terms. The term "pedigree diagram" is commonly used to describe a schematic showing the family lineage of whole organisms, such as humans.

With regard to Claim 16, the phrase "memorizing means" is indefinite as to whether it refers to a database, a computer memory, a removable memory storage device, etc. It is unclear what is encompassed since the term is not a standard term used in the art.

The phrase "living matter" is indefinite as to whether it refers to an organism, an organ, a tissue, a subgrouping of cells, a single cell, a constituent of a cell, etc. It is unclear what is encompassed since the term is not a standard term used in the art.

The phrase "site unit of the living matter" is indefinite as to whether it refers to an organ, a tissue, or a constituent of a cell, and if it is a constituent of cell, whether it is an organelle, a molecule, the active site of an enzyme, etc. It is unclear what is encompassed since the term is not a standard term used in the art.

The phrase "shape of the living matter" is indefinite as to whether it refers to a true-to-life representation of the "living matter", such as a photographic 3-D rendering, or simply an abstract symbolic representation.

The phrase "a viewpoint" is indefinite as to whether it refers to a position on the display screen where data is to be displayed, or a point of view from which to observe the data.

The phrase "viewpoint setting means" is indefinite as to what those means are. It is unclear what is encompassed since the term is not a standard term used in the art.

The phrase "to display it in one color or multiple colors depending on a frequency of expression of a gene" is indefinite. First, the words "to display" do not indicate whether an active step of displaying is to be executed. Second, it is unclear what degree of "frequency of expression of a gene" would result in a display of "one color" versus "multiple colors."

With regard to Claims 17-19, and 21, the phrase "memorizing means" is indefinite as to whether it refers to a database, a computer memory, a removable memory storage device, etc. It is unclear what is encompassed since the term is not a standard term used in the art.

With regard to Claim 20, the phrase "memorizing means" is indefinite as to whether it refers to a database, a computer memory, a removable memory storage device, etc. It is unclear what is encompassed since the term is not a standard term used in the art.

The phrase "living matter" is indefinite as to whether it refers to an organism, an organ, a tissue, a subgrouping of cells, a single cell, a constituent of a cell, etc. It is unclear what is encompassed since the term is not a standard term used in the art.

The phrase "site unit of the living matter" is indefinite as to whether it refers to an organ, a tissue, or a constituent of a cell, and if it is a constituent of cell, whether it is an organelle, a molecule, the active site of an enzyme, etc. It is unclear what is encompassed since the term is not a standard term used in the art.

The phrase "shape of the living matter" is indefinite as to whether it refers to a true-to-life representation of the "living matter", such as a photographic 3-D rendering, or simply an abstract symbolic representation.

The phrase "a viewpoint" is indefinite as to whether it refers to a position on the display screen where data is to be displayed, or a point of view from which to observe the data.

The phrase "designating a viewpoint on a three-dimensional space" is indefinite as to whether it involves entering numerical coordinates, or whether the user clicks on a position within the visual image display using a computer mouse, etc. It is also unclear whether the three-dimensional space lies in a three-dimensional coordinate system displayed on the computer screen, or somewhere else.



The phrase "to display it in one color or multiple colors in various scales" is indefinite. First, the words "to display" do not indicate whether a display is performed. Second, no criteria are given as to what "frequency of expression of a gene" would result in a display of "one color" versus "multiple colors in various scales."

With regard to Claim 22, the phrase "a program for use in displaying an expression phenomenon in a living matter which is associated with a method" is unclear regarding whether the applicants' instant method is executed by the program, or whether the program "is associated" with the applicants' instant method and therefore executes some auxiliary or complementary functionality. If the program actually is just "associated with a method", then it is unclear in what way it is associated, what function it is supposed to perform, and whether it is a computer-executable program.

The phrase "living matter" is indefinite as to whether it refers to an organism, an organ, a tissue, a subgrouping of cells, a single cell, a constituent of a cell, etc. It is unclear what is encompassed since the term is not a standard term used in the art.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 and 16-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Hartenstein et al. (*Trends in Genetics*, 1995).

With regard to claim 1, Hartenstein et al. teaches a method of displaying gene expression phenomenon in cells, tissues and organs of embryos (a cell unit or a site unit of the living matter) (see at least the abstract of Hartenstein et al.) at all developmental stages organized in a temporal framework (along a time axis) (see pg. 51, col. 2, lines 29-44) as a digital three-dimensional model (data indicative of a shape thereof) (see at least pg. 53, col. 1, lines 42-46) and illustrating the relationship between the expression pattern of a given gene and the morphologically defined boundaries of the tissue expressing it, where the gene is shown being expressed in all cells but in a graded manner according to expression level (an expression data associated with the degree of gene expression) (see pg. 56, col. 2, lines 50-56; and Fig. 5). Hartenstein et al. further teaches that the method is implemented on a computer system comprising a database (memorizing means that memorizes) (see at least the abstract), and a computer to retrieve the above data stored in the database (a processing means adapted to obtain said data indicative of the shape and expression data that are memorized in said memorizing means) (see at least pg. 53, col. 2, lines 52-64) and display the data as a three-dimensional image on a computer visual interface (visualize and display the gene expression phenomenon on a display screen) (see at least pg. 53, col. 2, lines 52-64).

Hartenstein et al. further teaches that gene expression pattern data is stored in the database and that "superimposed upon the three-dimensional structures of the database, expression patterns can be viewed at any desired angle and orientation." (see pg. 53, col. 2, lines 25-29). The order of steps for the above are 1) displaying the three-dimensional structure, 2) setting a viewpoint to view the three-dimensional structure, and 3) retrieving and displaying gene expression data where the pattern of gene expression is then "superimposed" over the existing three-dimensional structure to create a three-dimensional image of the gene expression phenomenon (see Box 1). Hartenstein et al. further teaches that the gene expression data can be displayed in a distinctive color and in various shadings/intensities corresponding to expression level (see pg. 57, col. 1, lines 1-5; and Fig. 5 and 6) (the preceding corresponds to the applicants method steps of a first step of displaying as a three-dimensional image on the display screen a shape of the living matter of a cell or site of which expression phenomenon is observed; a second step of setting a viewpoint on a three-dimensional space where the gene expression phenomenon in the shape of the living matter displayed is to be observed; and a third step of reading the gene expression data of the cell or the site in the shape of the living matter out of said memorizing means, creating a three-dimensional image representing the expression phenomenon at the viewpoint set at said second step or at a fixed viewpoint, to display it in one color or multiple colors in various scales depending on a frequency of expression of a gene in the subject cell or site).

With regard to claim 2, Hartenstein et al. teaches displaying a chronological change in the shape of a cell or site of an embryo during embryogenesis and displaying the change as an animated three-dimensional image from a certain viewpoint at a certain instant of time (see pg. 53, col. 1, lines 56-64).

With regard to claim 3, Hartenstein et al. teaches chronologically displaying a change in the shape of a cell or site of an embryo during embryogenesis as caused by morphogenetic movements (living activities of its own) and displaying as an animation a change of a three-dimensional image representing an expression phenomenon from a certain viewpoint at a certain instant of time (see pg. 53, col. 1, lines 56-64).

With regard to claims 4 and 5, Hartenstein et al. teaches displaying in parallel three-dimensional images of gene expression phenomena for each cell of two embryos at different stages of embryogenesis (cells of two or more living matters), further characterized by comparing the three-dimensional images to visually display similarities therebetween in a predetermined display format (see at least pg. 53, col. 2, lines 35-51).

With regard to claim 6, Hartenstein et al. teaches mapping expression data of a cell or site on coordination points in a color space of the three primary colors and displaying the data in color (see at least pg. 54, lines 58-63; pg. 55, col. 2, lines 55-64; and pg. 57, lines 1-5).

With regard to claim 7, Hartenstein et al. teaches mapping expression data of two or more cells or sites on coordination points in a color space of the three primary colors and displaying the data in color (see pg. 54, lines 58-63; pg. 55, col. 2, lines 55-64; and pg. 57, lines 1-5).

With regard to claim 8, Hartenstein et al. teaches cutting the displayed three-dimensional image of the gene expression phenomenon at a designated plane in three-dimensional space and displaying an image of the gene expression phenomenon along the cutting plane (pg. 53, col. 1, lines 44-56; and pg. 51, lines 48-51).

With regard to claim 9, Hartenstein et al. teaches displaying information about the gene expressed in a designated cell as graphics in response to an operation that designates the cell or site on a three-dimensional image representing the expression phenomenon displayed (pg. 51, col. 1, lines 51-54).

With regard to claims 16-22, Hartenstein et al. teaches that the above methods are implemented using computer systems. Specifically, they teach that "Digital models of embryonic structure and gene expression data can be made available using a number of methods. Data sets (obtained, for example at individual stages of development) can be copied onto media such as optical discs; models can then be viewed and manipulated, provided the user's setup meets the necessary soft- and hardware requirements. Data sets can also be accessed via the World Wide Web (WWW). The WWW viewer, Mosaic, is available for Macintosh and PCs running Windows. The WWW allows many types of information, stored in our facility at UCLA, to be retrieved or viewed graphically via a highly intuitive visual interface" (pg. 53, col. 2, lines 52-64).

Applicants' instant limitations of using separate "memorizing means" for storing data are met by the disclosure of Hartenstein et al., since as quoted in the preceding paragraph, they teach the use databases stored in server computers (data sets retrieved via the WWW from a data storage facility) and/or optical discs for storing data used in the methods. Applicants' instant limitations of using separate computers or "processing means" are met by the disclosure of Hartenstein et al., since as quoted in the preceding paragraph, they teach retrieving, manipulating and displaying the data by having separate computers interact through the WWW. One of ordinary skill in the art would have recognized that the interaction of separate computers through the WWW, where one is the user's and the other is at a data storage facility providing for retrieval of the data, represents a client computer and a server computer connected to each other via a network.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hartenstein et al. in view of Allen et al. (US 2003/0176977 A1). The disclosure of Allen et al., relied upon in this rejection, receives benefit to at least the filing date of March 10, 2000, of provisional application No. 60/188168.

If a copy of a provisional application listed on the bottom portion of the accompanying Notice of References Cited (PTO-892) form is not included with this Office action and the PTO-892 has been annotated to indicate that the copy was not readily available, it is because the copy could not be readily obtained when the Office action was mailed. Should applicant desire a copy of such a provisional application, applicant should promptly request the copy from the Office of Public Records (OPR) in accordance with 37 CFR 1.14(a)(1)(iv), paying the required fee under 37 CFR 1.19(b)(1). If a copy is ordered from OPR, the shortened statutory period for reply to this Office action will not be reset under MPEP § 710.06 unless applicant can demonstrate a substantial delay by the Office in fulfilling the order for the copy of the provisional application. Where the applicant has been notified on the PTO-892 that a copy of the provisional application is not readily available, the provision of MPEP § 707.05(a) that a copy of the cited reference will be automatically furnished without charge will not apply.

Hartenstein et al. is applied as above.

Hartenstein et al. does not teach chronologically displaying a change in the shape of a cell site as caused by an external stimulation.

Allen et al. teaches a method of chronologically displaying gene expression phenomenon in a cell, chronologically displaying a change in the shape of a site of a cell caused by an external stimulation, and displaying the change in the gene expression phenomenon and the change in shape as a dynamic animated three-dimensional graphical image from a certain viewpoint at a certain instant in time (see at least Fig. 11 and 15; and paragraphs [0009]-[0011], [0115], and [0033]).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Allen et al. with the teachings of Hartenstein et al., since Allen et al. teaches that chronologically displaying a change in the cell site caused by an external stimulation is useful "for predicting likely biological outcomes" (paragraph [0013]).

Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartenstein et al. in view of Martinelli et al. (*Cell & Developmental Biology*, 1997).

Hartenstein et al. is applied as above.

Hartenstein et al. does not teach the following limitations of claims 10-13 regarding pedigree diagrams.

Martinelli et al. teaches a method for use in displaying a gene expression phenomenon in a cell, tissue, organ or organism, characterized by coordinating and displaying a three-dimensional image representing the gene expression phenomenon with a cell lineage tree (pedigree diagram) of embryogenesis; displaying a three-dimensional image representing the gene expression phenomenon in a designated cell in response to an operation that designates the cell on the lineage tree; displaying a three-dimensional image representing the expression phenomenon in the designated cell before and after differentiation, in response to an operation that designates a cell on the pedigree diagram; and displaying expression data of a designated cell as graphics, in response to an operation that designates a cell on the pedigree diagram (see at least Fig. 5 with legend; pg. 466, col. 1, lines 5-14; and pg. 466, col. 1, lines 41-48).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Martinelli et al. regarding a cell pedigree diagram with the teachings of Hartenstein et al., since Martinelli et al. teaches that by coordinating a pedigree diagram with a three-dimensional image representing the expression phenomenon during embryogenesis, "cells can be searched for,

tracked, and highlighted...as a visual aid for understanding the development of the embryo and as a laboratory-based reference tool" (see pg. 466, col. 1 lines 33-35; and pg. 466, col. 1 line 43).

Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartenstein et al. in view of Debry et al. (*Genomics*, 1996).

Hartenstein et al. is applied as above.

Hartenstein et al. does not teach coordinating the three-dimensional image of a gene expression phenomenon with the position of a gene on a gene map that causes expression.

Debry et al. teaches displaying the position of a gene responsible for a gene expression phenomenon on a gene map (see at least Fig. 1), but does not teach displaying a three-dimensional image of a gene expression phenomenon in a cell, tissue or organism.

It would have been obvious to one of ordinary skill in the art to combine the teachings of Debry et al. with the teachings of Hartenstein et al. to display a gene expression phenomenon in a cell, tissue, organ or organism, characterized by coordinating and displaying in a predetermined display format, a three-dimensional image of the gene expression phenomenon (or the expression phenomenon of a gene in two or more cells or sites) and a position of a gene on a gene map that causes expression, since Debry et al. -- in reciting known links between known gene defects and known hereditary developmental disorders that originate during embryogenesis -- further teaches the importance of using chromosomal gene location information in the form of gene maps for identifying still unknown associations between abnormalities of gene expression phenomenon and hereditary developmental disorders that originate during embryogenesis (see at least pg. 337; and pg. 347).



***Made of Record***

It is made of record that foreign patent application document No. JP2000163398, listed in applicants' IDS, appears to disclose various aspects of applicants' instant invention and therefore may be used as prior art that could result in an additional set of rejections, pending examiner's acquisition of an English translation of the document and subsequent evaluation.

Prior Art made of record which discloses various aspects of applicants' instant invention but was not relied upon:

Baldock, R.A., Verbeek, F.J., and Vonesch, J-L., "3-D Reconstructions for graphical databases of gene expression", *Cell & Developmental Biology*, 1997, Vol. 8, pg. 499-507.

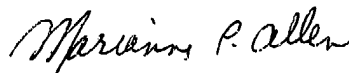
***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew A. Kenedy whose telephone number is 703-305-4842 (after January 12, 2003, use telephone number 571-272-0574). The examiner can normally be reached on Monday-Friday 9:00am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward can be reached on 703-308-4028. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4842.

A.A.K.  
January 8, 2004

  
MARIANNE P. ALLEN  
PRIMARY EXAMINER  
A41631